

Single Frequency Narrow Linewidth 2 Micron Laser, Phase I

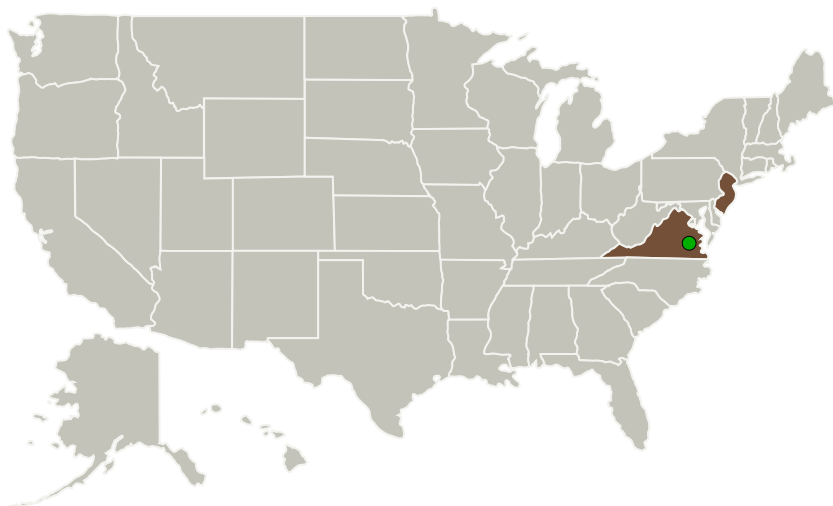
Completed Technology Project (2011 - 2011)



Project Introduction

NASA needs narrow linewidth lasers in the 1.5 or 2 micron wavelength regime for coherent Lidar applications. The laser should be tunable by several nm and frequency modulated by 5GHz. Princeton Optronics has developed ultra-stable narrow linewidth diode pumped solid state lasers at 1550nm and has demonstrated frequency modulation with such lasers. In this SBIR, we propose to develop a Tm:YAG material based diode pumped solid state laser with a narrow line width which would be tunable and capable of frequency modulation by 5GHz. By the end of the SBIR program we plan to develop a prototype 2 micron laser which is tunable and has very narrow linewidth in a small package. The package with the device would be space qualified and commercialized after development.

Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---------------------------------|-------------------------|-------------|-------------------------|
| Princeton Optronics, Inc. | Lead Organization | Industry | Mercerville, New Jersey |
| ● Langley Research Center(LaRC) | Supporting Organization | NASA Center | Hampton, Virginia |



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Primary U.S. Work Locations

New Jersey

Virginia

Project Transitions

**February 2011:** Project Start**August 2011:** Closed out**Closeout Summary:** Single frequency narrow linewidth 2 micron laser, Phase I Project Image**Closeout Documentation:**

- Final Summary Chart Image(<https://techport.nasa.gov/file/138506>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Princeton Optronics, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

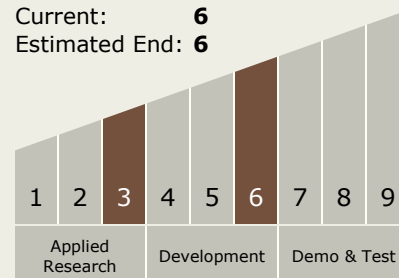
Laury Watkins

Technology Maturity (TRL)

Start: 3

Current: 6

Estimated End: 6



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers

Target Destinations

Earth, The Moon, Others Inside the Solar System, Outside the Solar System, The Sun, Mars